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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,506	07/23/2004	Eric Stephen Carlsgaard	PU010288	5769

7590

06/06/2006

Joseph S. Tripoli
Thomas Licensing Inc.
Patent Department
P O Box 5312
Princeton, NJ 08543-5312

EXAMINER

HUYNH, ANDY

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/502,506	CARLSGAARD, ERIC STEPHEN	
	Examiner	Art Unit	
	Andy Huynh	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is responsive to the Response filed April 12, 2006.

Response to Arguments

Applicant's arguments with respect to Claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 8-12 and 15-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamada et al. (US 6,121,690 hereinafter referred to as "Yamada.")

Regarding Claim 1, Yamada discloses in Figs. 1-8 and its corresponding texts as set forth in column 3, line 15-column 5, line 22, an integrated circuit die for a flip chip comprising:

a die/a semiconductor chip 1; and

a plurality of die bond pads 2 and 3 situated on said die/the semiconductor chip wherein said die bond pads are situated in rows with every other row having a bond pad spacing different than that of a bond pad spacing of an adjacent row.

Regarding Claims **2 and 9**, Yamada discloses in Figs. 1-8 said plurality of die bond pads is positioned proximate an outside surface of said die/the semiconductor chip.

Regarding Claims **3 and 10**, Yamada discloses in Figs. 1-8 the bond pad spacing of every other row is twice the bond pad spacing of an adjacent row (col. 3, line 35).

Regarding Claims **4, 5, 11, 12 and 19**, Yamada discloses in Figs. 1-8 said die bond pads situated in rows define row pairs, a first row of a row pair having a first bond pad spacing defining a first pitch, and a second row of the row pair having a second bond pad spacing defining a second pitch that is different than that of said first pitch; wherein said first row of the row pair is situated proximate an outside edge of said die/the semiconductor chip.

Regarding Claim **8**, Yamada discloses in Figs. 1-8 and its corresponding texts as set forth in column 3, line 15-column 5, line 22, an integrated circuit die for a flip chip comprising:

Die means/a semiconductor chip 1; and

a plurality of die bond pads 2 and 3 situated on said die/the semiconductor chip wherein said die bond pads are situated in rows with every other row having a bond pad spacing different than that of a bond pad spacing of an adjacent row.

Regarding Claim **15**, Yamada discloses in Figs. 1-8 and its corresponding texts as set forth in column 3, line 15-column 5, line 22, a method of fabricating an integrated circuit die for a flip chip comprising the steps of:

providing an integrated circuit die/a semiconductor chip 1; and

providing a plurality of die bond pads 2 and 3 situated on said integrated circuit die/the semiconductor chip wherein said plurality of die bond pads are situated in rows with every other row having a bond pad spacing different than that of a bond pad spacing of an adjacent row.

Regarding Claims **16-18**, Yamada discloses in Figs. 1-8 said step of providing a plurality of die bond pads comprises positioning the rows of die bond pads proximate an outside surface of said die/the semiconductor chip, wherein the step of providing rows of bond pads beginning proximate an outside surface of said integrated circuit die includes the step of providing rows of bond pads with every other row having a bond pad spacing twice that of a bond pad spacing of an adjacent row, wherein the step of providing rows of bond pads with every other row having a bond pad spacing different than that of a bond pad spacing of an adjacent row includes the step of situating the bond pads in rows defining row pairs, a first row of a row pair having a first bond pad spacing defining a first pitch, and a second row of the row pair having a second bond pad spacing defining a second pitch that is different than that of said first pitch.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **6, 7, 13, 14, 20 and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 6,121,690 hereinafter referred to as “Yamada”) in view of Mangold et al. (US 5,759,910 hereinafter referred to as “Mangold.”)

Yamada discloses all the claimed limitations except for each die bond pad is circular, and each circular bond pad has a diameter of approximately 5 mils. Mangold teaches in Fig. 1 each

Art Unit: 2818

die bond pad 104 has circular pad geometry (col. 1, line 60). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the die bond pad having circular pad geometry, as taught by Mangold to incorporate into Yamada's structure to arrive the claimed invention, since such a modification would have involved a mere change in the shape of the die bond pad. A change in shape is generally recognized as being within the level of ordinary skill in the art. And, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to form each circular bond pad having a diameter of approximately 5 mils, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM. The Fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Art Unit: 2818

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Andy Huynh

Patent Examiner